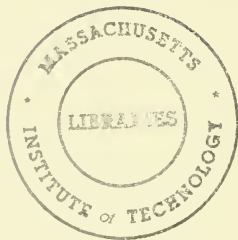


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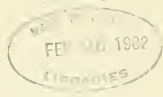






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Project Performance and the Influence of Group Longevity\*

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Project Performance and the Influence of Group Longevity

by

Ralph Katz

The general neglect of a temporal perspective - the fact that group activities do not take place at random points in time - has been one of the major problems in the study of groups and project teams. Yet until it is addressed, questions about how well a group is doing will receive answers that are, at best, incomplete. As individuals are born, grow, up and grow old - first feeling their way uncertainly, then seeking out new challenges and experiences as they gain confidence, and finally, becoming a bit self-satisfied about thier own knowledge and achievements - so the same process seems to occur within groups whose members have worked together for an extended period.

The analogy is a convenient one, though subject in both cases to variation: age need not mean stagnation in either an individual or a group. Still, a field study of research and development project teams, which I and Professor Tom Allen have been engaged in for some years, does tend to support a general finding of less intense involvement in job demands and challenges with increasing stability in project membership.

It is, of course, natural for both individuals and groups to attempt to structure their work activities to reduce stress and ensure a level of certainty. People like to know, as much as possible, what will happen next. Given this, group members interacting over a long time are likely to develop standard work patterns that are both familiar and comfortable, patterns in which routine and precedent play a relatively large part - perhaps at the expense of unbiased thought and new ideas. On the other hand, an environment

devoid of structure and definition, one wholly unfamiliar and enigmatic, is equally undesirable. Without some sort of established pattern or perspective to serve as a basis for action, nothing at all would be accomplished. The task of management, then, is to create and maintain an atmosphere in which employees are both familiar with their job requirements and challenged by them.

How long it takes to acquire the requisite familiarity with one's job to function efficiently depends on the length of time it takes an employee to feel accepted and competent in his or her new environment. This feeling is influenced both by the nature of the individual and that of the job. Generally speaking, the time varies according to the level of complexity involved in the job requirements, ranging from as little as a month or two to as much as a year or more on exceptionally skilled jobs as in the engineering and scientific professions.

In engineering, for example, strategies and solutions are usually peculiar to specific settings. Research and development teams in different organizations may face similar problems, yet approach their solutions with widely divergent methods. Thus, even though one may have received an excellent education in, say, mechanical engineering principles, one must still figure out how to be an effective mechanical engineer at Westinghouse, Du Pont, or General Electric.

In the course of long-term job tenure, an individual may be said to pass through three broad stages: socialization, innovation, and stabilization.

During the socialization period, employees are primarily concerned with understanding and coming to terms with their new and unknown social and task environments. Newcomers must learn the customary norms of behavior within their groups, how reward systems operate, the expectations of supervisors, and a host of other considerations that are necessary for them to function

meaningfully. These considerations may vary to a surprisingly large extent even within a single organization. This is important for while the necessity of such a "breaking-in" period has long been recognized in the case of recently hired members of an organization, it should also be understood that veteran employees assigned to new groups must also "resocialize" themselves since they, too, must now deal with unfamiliar tasks and colleagues. It is in this period that employees learn not only the technical requirements of their new job assignments, but also the behaviors and attitudes that are acceptable and necessary for becoming a true contributing member of the group.

As individuals gain familiarity with their work settings, they are freer to devote their energies and concerns less toward socialization and more toward performance and accomplishment. In the innovation stage of a job, employees become capable, to a greater extent, of acting in a responsive and undistracted manner. The movement from socialization to innovation implies that employees no longer require much assistance in deciphering their new job and organizational surroundings. Instead, they can divert their attention from an initial emphasis on psychological "safety and acceptance" to concerns for achievement and influence. Opportunities to participate and grow within job settings become progressively more pertinent to employees in this stage.

As the length of time spent in the same job environment stretches out, however, employees gradually enter the stabilization phase, in which there is a slow shift away from a high level of involvement and receptivity to the challenges in their job demands and toward a greater degree of unresponsiveness to these challenges.

In time, even the most engaging job assignments and responsibilities can appear less exciting, little more than habit, to people who have successfully mastered and become accustomed to their everyday task requirements. It makes

sense, then, that with prolonged job stability, employees' perceptions of their conditions at present and possibilities for the future will become increasingly impoverished. If employees cannot maintain, redefine, or expand their jobs for continued change and growth, then their work enthusiasm will deteriorate. If possibilities for development are continued, however, then the stabilization period may be held off indefinitely.

The irony of the situation is that employees with the greatest initial responsiveness to job challenges seem to retain that responsiveness for a shorter length of time than those expressing less of a need for high job challenges. The greater initial enthusiasm of high need employees appears to drive them more swiftly through the socialization and innovation periods and into stabilization, resulting in weariness with routines that are now too familiar to their growth-oriented natures.

Of course, job longevity does not exist in a vacuum. Many other factors may influence the level of job interest. New technological developments, rapid growth and expansion, or strong competitive pressures could help sustain or even enhance one's involvement in his or her job-related activities. On the other hand, working closely with a group of unresponsive peers in a relatively unchanging situation might shorten an individual's responsive period on that particular job rather dramatically.

Despite these other influences, though, the general trend does hold. In moving from innovation to stabilization, employees who continue to work in the same overall job situation for long periods gradually adapt to such steadfast employment by becoming increasingly indifferent to the challenging aspects of their assignments. And as employees come to care less about the intrinsic nature of the work they do, their absorption in contextual features such as salary, benefits, vacations, friendly co-workers, and compatible superiors

tends to increase.

Interestingly, entry into the stabilization period does not necessarily imply a reduced level of job satisfaction. On the contrary, in fact. As employees enter the stabilization stage, they have typically adapted by becoming very satisfied with the comfortableness and predictability of their work environments; for when the chances of future growth and challenge become limited, existing situations become accepted as the desired. Only when a reasonable gap is maintained between what individuals desire and what they are presently able to achieve will there be energy for change and accomplishment.

With stability, however, comes a greater loyalty to precedent, to the established patterns of behavior. In adapting to high job longevity, employees become increasingly content with customary ways of doing things, comfortable routines and familiar sets of task demands that promote a feeling of security and confidence while requiring little exceptional effort or vigilance. The preservation of such patterns is likely to be a prime consideration, with the result that contact with information and ideas that threaten change may be curtailed. Moreover, strong biases may develop in the selection and interpretation of information, in abilities to generate new options and strategies creatively, and in the level of willingness to innovate or implement alternative courses of action. My field study has focused on communication activity as a behavioral index by which to examine the effects of group longevity on project performance where group longevity measures the length of time that project members have worked and shared experiences with one another.

### An Example

Basic data collection for the study took place at the research and development facility of a large American corporation, employing 345 engineering and scientific professionals in 61 distinct project groups or work areas. Each professional belonged to only one project group, and all of the groups remained stable over the course of the data collection period. Project groups were organized around specific, long-term kinds of problem areas such as fiber-forming development and urethane development and ranged across three broad categories of R&D activity: "Applied Research," "Product & Process Development," and "Technical Service and Support."

The purpose of the study was two-fold. First, to examine the level of communication by project groups at various stages in the groups "life" (i.e., its group longevity) and, second, to discover any possible relationship between a lessening of communication and a drop in performance. The focus was on interpersonal communication, which, as many previous studies have demonstrated, is the primary means by which engineering and scientific professionals collect outside information and transfer it into their project groups.

Group longevity, or mean group tenure, was calculated by averaging the individual project tenures of all project members. Therefore, group longevity is not the length of time the project has been in existence, nor is it the average time the members have been part of the larger organization. Rather, it represents the length of time group members have been working together in a particular project area.

Participants kept track of all other professionals with whom they had work-related oral communication on a randomly chosen day each week for fifteen weeks. Contacts both inside and outside the research and development facility

were measured. Based on this data, three independent measures of project communication were determined by averaging the amount of technical communication per person per project to each of three separate areas of important information:

1. Intraproject Communication: The amount of contact reported among all project members.
2. Organizational Communication: The amount of contact reported by project members with individuals outside the R&D facility but within other corporate divisions, principally marketing and manufacturing.
3. Professional Communication: The amount of contact reported by project members with professionals outside the parent organization, including professionals in universities, consulting firms, and professional societies.

For all three areas or sources of information, project groups whose group longevity index was five or more years reported much lower levels of actual contact than project groups whose group longevity index fell between one and a half and five years. Intraproject, organizational, and outside professional interaction were considerably lower for the longer-tenured groups. Members of these groups, therefore, were significantly more isolated from external sources of new ideas and technological advances and from information within other organizational divisions, especially marketing and manufacturing. Project members were even more isolated from each other in these long-tenured groups.

In addition to these measures of actual communication behavior, a direct measure of the current technical performance of the project groups was developed. All department managers and laboratory directors were separately

interviewed and asked to evaluate the overall performance of all projects with which they were technically familiar, based on their knowledge of and experience with the various projects. The managers, in making their evaluations, considered such elements as schedule, budget, and cost performance; innovativeness; adaptability; and the ability to coordinate with other parts of the organization. In general, each project group was independently rated by five higher-level managers; consensus among the ratings was also extremely high.

On the average, the association between project performance and group longevity closely paralleled the curvilinear trends between group longevity and project communication. The best performing project groups were those with group longevities between one and a half and five years. Performance was significantly lower for teams that had been together for less than a year and a half or more than five years. In fact, none of the ten project groups in the long-tenured category were among the facility's higher performing project teams, all being rated by the facility's management as either average or below average.

Almost by definition, projects with higher mean group tenures were staffed by older engineers. This raises the possibility that performance may be lower as a result of the increasing obsolescence of individuals' skills as they aged, rather than because of anything to do with the group's tenure composition. The data, however, do not bear this out. For both the communication and the performance data, it was found that group longevity and not the chronological age of individuals was more likely to have influenced the results.

Another possibility is that long-tenured project teams had simply come to be staffed by less technically competent or perhaps less motivated engineers and scientists. Follow-up visits to this facility, however, show the same



proportion of professionals from both the long- and medium-tenured teams being promoted to higher level managerial positions above the project leadership level during the five-year interval since the collection of the original data. Fifteen percent of the engineers who had been working in medium-tenured groups attained managerial positions of either laboratory supervisor or laboratory manager, while the percentage in the longer-tenured groups was 13 percent. In fact, following the introduction of a dual-ladder promotional system designed, according to the company, to reward those whose "technical competency and contributions are well-recognized," the percentage of longer-tenured project members promoted was greater than the percentage from medium-length groups, 19 percent compared to 12 percent. This seems to indicate a relative parity in the area of competence among the memberships of the respective groups.

Despite the parallel declines in both project communication and performance with increasingly high levels of group longevity, one must be careful not to jump to the conclusion that decays in all areas of communication contributed equally to the lower levels of project performance. Different categories of project tasks require different patterns of communication for more effective performance. Research project groups, for example, have been found to be higher performing when project members maintain high levels of technical communication with outside professionals. Performance in development projects, on the other hand, is related more to contact within the organization, primarily with divisions such as marketing and manufacturing. Finally, for technical-service projects, communication within the team appears most crucial.

Significantly, for each project type, the deterioration in interaction was particularly strong to the area most important for high technical performance. This suggests that it is not a reduction in project

communication per se that leads to less effective project performance; but rather it is an isolation from sources that can provide the most critical kinds of evaluation, information, and new ideas. Thus, overall effectiveness suffers when research project members fail to pay attention to events and information within the larger technical community outside the organization; or when development project members lose contact with client groups from marketing and manufacturing; or when technical-service project members do not interact sufficiently among themselves.

#### Group Longevity and Information Processing Activity

Clearly - at least in the case of the groups studied here - there are strong relationships between longevity within a group and decreased levels of communication activity and project performance. In order to develop strategies that circumvent these unfortunate outcomes, the processes through which they occur must be understood in greater detail. What happens in long-term groups that leads to their being relatively cut off from important sources of new ideas and information?

Essentially, project newcomers in the midst of socialization are trying to navigate their way through new and unfamiliar territories without the aid of adequate or even accurate perceptual maps. During this initial period, they are relatively more malleable and more susceptible to change, dependent as they are on other project members to help them define and interpret the numerous activities taking place around them. As they become more familiar with their project settings, however, they also become more capable of relying on their own perceptions and knowledge for interpreting events and executing their everyday project requirements. Having established their own social and task supports, their own outlooks and their own work identities, they become

less easily changed and less easily influenced.

If this process is allowed to continue among project members, healthy levels of self-reliance can easily degenerate into problematic levels of closed-mindedness. Rigidity in problem-solving activities - a kind of functional fixedness - may result from this, reducing the group's ability to react flexibly to changing conditions. Novel situations are either ignored or forced into established categories; new or changing circumstances either trigger old responses or none at all.

Furthermore, the longer group members are called upon to follow and justify their problem-solving strategies and decisions, the more ingrained these approaches are likely to become. As a result, alternative ideas that were probably considered and discarded during previous discussions may never be reconsidered even though they may have become more appropriate or feasible. In fact, members may end up devoting much of their efforts to the preservation of their particular approaches against the encroachment of competing methods and negative evaluations. Essentially they become overly committed to the continuation of their existing ideas and solutions, often without sufficient regard to their "true" applicability.

With this perspective, as one might suspect, the extent to which group members are willing or even feel they need to expose themselves to alternative ideas, solution strategies, or constructive criticisms is likely to be diminished. A pattern of increasing isolation from external changes and new technological developments coupled with a growing complacency about work-related challenges may be the result. Project teams with high levels of group longevity, then, appear to behave as if they possess sufficient expertise in their specialized technical areas that it is unlikely that outsiders might be producing important new ideas or information relevant to

the performance of their project tasks. Rather than face the anxiety and discomfort inherent in learning or change, they tacitly assume that their abilities and experienced know-how are far better than those ideas or suggestions coming from outside their group.

Another explanation contributing to the reduced levels of project member interaction is the principal of selective exposure, the tendency for group members to communicate only with those whose ideas and outlooks are in accord with their own current interests, needs, and existing attitudes. Moreover, there is the strong tendency for group members to become more alike as they continue to interact. Just as it is sometimes said that close friends or husbands and wives seem to grow closer in appearance, so groups may take on a kind of collective viewpoint after interacting for an extended period. As members stabilize their work settings and patterns of communication, a greater degree of homogeneity is likely to emerge. This, in turn, leads to further stability in communication, and, therefore, even greater isolation from different-thinking others.

There is at least one advantage to this. People who think alike are able to communicate more effectively and economically. This advantage is more than outweighed, however, by the fact that such communication is likely to yield less creative and innovative outcomes than communication containing a variety of differing perspectives.

It should also be recognized that under these kinds of circumstances, even the outside information that is processed by long-tenured groups may not be viewed in the most open or unbiased fashion. Many kinds of cognitive defenses and distortions are commonly used by members in selectively perceiving outside information in order to support and maintain their decisional policies and strategies. Such defenses can easily be used to argue against any disquieting

information and evidence in order to maintain their present courses of action. Such selectivity can also result in a more restricted perspective of one's situation which can be very detrimental to the group's overall effectiveness, for it often screens out vitally important information cues.

These trends of increasing insulation, selective exposure, and selective perception can all feed off each other in a kind of vicious circle, leaving group members in a state of greater and greater isolation from new advances and ideas, and greater and greater reliance on an increasingly narrow and homogeneous set of alternatives.

#### Managing for Innovation

Are these group processes inevitable or can management alter the composition of current R&D groupings in order to minimize the effects of extended group longevity on project performance and still ensure an adequate level of stability for relatively smooth operation? What follows are a few suggestions toward the goal of managing for a continuously high level of innovation.

Employee perspectives and behaviors, and their subsequent effects on performance, can be significantly affected through the systematic and creative use of staffing and career decisions. For example, regular placement of new members into project groups may perform an energizing and destabilizing function - keeping the group longevity index from rising, thereby, preventing the group from developing some of the tendencies described here (particularly isolation from critical information areas.) New members not only bring with them the relative advantage of fresh ideas and approaches, but also a fresh eye for looking at or reexamining old ones. With their active participation, older members might be kept responsive to the generation of new methods and

behaviors as well as to the reconsideration of alternatives that might otherwise be ignored. In short, project newcomers create a novelty-enhancing situation, challenging and improving the scope of existing methods and accumulated knowledge.

Clearly, the longevity framework suggests that periodic additions or rotations can help prevent the onset of the stabilization processes associated with high longevity. Provided the socialization period for project newcomers is not overly conforming, project groups can simply remain in an innovation cycle. While prevention is clearly easier, it is also suggested that the replacement or reassignment of certain long-tenured professionals to different project groups may be necessary for improving the performance of high longevity teams as well as for keeping such groups stimulated, flexible, and vigilant with respect to their project environments. Continued growth and development comes from adaptations to new challenges, often requiring the abandonment of familiar and stable work patterns in favor of new ones.

Interestingly, managers are usually not aware of the tenure demographics of their project groups. In our studies, managers are usually unable to identify which of their projects have high levels of group longevity. In fact, they are often surprised that any of their project teams have mean group tenures of five or more years. As part of their project evaluation and human resource planning functions, then, managers might want to generate a more complete picture of their project groups' tenure distributions from which better staffing, hiring decisions, or reassignments of professionals among project activities can be made. While individual age and organizational tenure data are usually available through personnel files, individual project tenure and, more importantly, group longevity data are rarely part of an

organization's on-going information system.

Of course, rotations and promotions are not always possible, especially when there is little organizational growth. As important as job mobility is, it is no doubt equally crucial to determine whether project groups can circumvent the effects of high longevity without new assignments or rejuvenation from new project members. To do this, we must learn considerably more about the effects of increasing job and group longevities. For example, in the study presented here, none of the long-tenured project groups was above average in project performance. Yet different trends might have emerged with different kinds of organizational climates, different personnel and promotional policies, different economic and marketing conditions, or even different types of organizational structures. Can project groups keep themselves energized and innovative over long periods, or are certain kinds of structures and managerial practices needed to maintain effectiveness and high performance as a team ages?

In more recent data collected from twelve different technology-based organizations involving over 200 R&D project groups of which approximately fifty have group longevity scores of more than five years, it turns out that a large number of these long-tenured groups were judged to have a high level of performance. The data are still being processed, but preliminary analyses seem to indicate that the nature of the project's supervision may be the most important factor differentiating the more effective long-tenured teams from those less effective. In particular, engineers belonging to the high-performing, long-tenured groups perceived their project supervisor to be superior in dealing with conflicts between groups and individuals, in obtaining necessary resources for project members, in setting project goals, and in monitoring the activities and progress of project members toward these

goals. Furthermore, in performing these supervisory functions, the more effective project managers of long-tenured groups were not very participative in their approach. In fact, the most participative managers (as viewed by project members) were significantly less effective in managing teams with high group longevity.

These and other preliminary findings suggest the following strategies for managing professional groups with a group longevity index of at least five years:

- 1) More emphasis should be placed on the particular skills and abilities of the project manager. Members of long-tenured groups are more responsive to the nature of their supervision than to the intrinsic nature of their work content.
- 2) In terms of managerial style, project managers should place less emphasis on participative management and more emphasis on direction and control. As long as members of long-tenured groups are unresponsive to the challenges in their tasks, participative management will only be related to job satisfaction — not project performance.
- 3) Project managers, on the other hand, should be very responsive to the challenging nature of their project's work. Consequently, they should be given considerable authority and freedom to execute their project responsibilities, but they, in turn, should be "tight-fisted" with respect to their subordinates.

In a sense, then, traditional management may be effective for managing high group longevity teams. In a broader context, however, we need to learn how to manage workers, professionals, and project teams as they proceed through different stages of longevity. Clearly, different kinds of managerial



styles and practices may be more appropriate at different stages of the process. Delegation or participative management, for example, may be very effective when individuals are highly responsive to their work, but much less successful when employees are not, as in the stabilization phase. As perspectives and responsiveness shift over time, the actions required of managers will vary as well. And managers may be effective to the extent that they can recognize and react to such developments. As in so many areas, it is the ability to manage change that seems most important in providing careers that keep employees responsive and organizations effective.

References

Katz, Ralph, "The Effects of Group Longevity on Project Communication and Performance," Administrative Science Quarterly, March, 1982.

Katz, Ralph, "Managing Careers: The Influence of Job and Group Longevities," In R. Katz (ed.) Career Issues in Human Resource Management, Prentice-Hall, 1982, 154-182.

Katz, Ralph and Allen, Thomas, "Investigating the Not Invented Here (NIH) Syndrome," R&D Management, January, 1982.







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